Glossary

Acre-foot: The volume of water that will cover an area of 1 acre to a depth of 1 foot (equal to 43,650 cubic feet, or 325,804 gallons). Used as a measure for water storage volume in reservoirs.

Active Levee: A status applied to levees concerning their eligibility to participate in the Rehabilitation and Inspection Program under authority of PL 84 – 99. An active project must have met USACE criteria for entry and entered in the Rehabilitation and Inspection program. Only active projects may receive Rehabiliation Assistance to repair damages caused by a flood event or a coastal storm.

After Action Report (AAR): A tool that a learning organization uses to identify successes and oversights, develop follow-on actions, and share what is learned with others in concert with the organization's business strategy.

Anadromous fish: Fish, such as salmon or steelhead trout, that hatch in fresh water, migrate to and mature in the ocean, and return to fresh water as adults to spawn.

Annual operating plan: A yearly plan for operating reservoirs on the Columbia River.

B.C. Hydro: The British Columbia Hydro and Power Authority. This Crown Corporation was formed in 1962 following the merger of an expropriated private utility and the B.C. Power Commission.

Best Available Science: A term used to define guidelines for the use of scientific and technical information in a variety of natural resource related fields. Generally, the term relates to whether the information at question follows a valid scientific process (peer review, methods, logical conclusions and reasonable inferences, quantitative analysis, appropriate context, and references) that produces reliable information.

Biological Opinion: Also known as a BiOp. A document prepared by the US Fish and Wildlife Service or National Marine Fisheries Service under Section 7 of the Endangered Species Act. It is a product of consultation between one of those agencies and any federal agency proposing an action that may affect a species listed as threatened or endangered under the Endangered Species Act, or their designated critical habitat. It includes actions necessary to avoid harm or jeopardy to those listed species.

BPA: Bonneville Power Administration

BOR: Bureau of Reclamation

Channel Capacity: The maximum flow that can pass through a channel without overflowing the banks.

Columbia River Treaty: A treaty signed by the United States and Canada on September 16, 1964, for joint development of the Columbia River. The treaty is a U.S.-Canadian agreement for bilateral development and management of the Columbia River to achieve flood control and optimize power production. Under the Treaty, Canada built three large storage dams: Keenleyside, and Mica on the upper reaches of the Columbia River and Duncan Dam on the Duncan River, a tributary to Kootenay Lake. Libby Dam, on the Kootenai River in Montana was authorized for construcion under the Treaty.

Contingency Contracting: The necessity for protection or restoration of flood protection projects require immediate actions. To meet these requirements, justification exists for contracting procedures other than full and open competition (as provided under the Federal Acquisition Regulation (FAR) 6.302). These contingency contracting procedures shall comply with the FAR 6.302-2.

Cultural resources: The nonrenewable evidence of human occupation or activity seen in any district, site, building, structure, artifact, ruin, object, work of art, architecture, or natural feature that was important in human history at the national, state, or local level.

Corps: US Army Corps of Engineers.

Cubic feet per second: A measure of water flow past any given point in a river or through a dam. One cubic foot of water is about 7 ½ gallons.

Cultural resources: The nonrenewable evidence of human occupation or activity seen in any district, site, building, structure, artifact, ruin, object, work of art, architecture, or natural feature that was important in human history at the national, state, or local level.

Dissolved gas concentrations: The amount of chemicals normally occurring as gases, such as nitrogen and oxygen, which are held in solution in water, expressed in units such as milligrams of the gas per liter of liquid, or percent saturation.

Draft: Release of water from a storage reservoir, expressed in terms of reservoir surface elevation.

Drawdown: The rate at which a stage of a river or reservoir is lowered in terms of surface elevation.

Eligible Levee: A levee categorized as "active" in the Corps' Rehabilitation and Inspection Program, for which USACE can provide assistance under authority of PL 84 – 99 to repair damage caused by a flood event.

Emergency: A situation involving a natural or technological disaster that would result in an unaccetable hazard to human life, a significant loss of property, or significant economic hardship.

Emergency Operations Center (EOC) – Centers for emergency management operations during an emergency.

Emergency Prepardedness: All those activities and measures designed or undertaken to prepare for or minimize the effects of a hazard upon the civilian population, to deal with the immeidate emergency conditions that would be created by the hazard, and to effectuate emergency repairs to, or the emergency restoration of, vital utilities and facilities destroyed or damaged by the hazard.

Endangered species: As defined under the federal Endangered Species Act, a plant or animal species which is in danger of extinction throughout all or a significant portion of its range because its habitat is threatened with destruction, drastic modification, or severe curtailment, or because of overexploitation, disease, predation, or other factors. Species listed as endangered are officially designated by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service and published in the Federal Register.

Environmental Assessment (EA): A concise public document prepared by a Federal agency to provide an evaluation of impacts of a proposed Federal action when impacts ar not believed significant, or can be mitigated to nonsignificance (results in a Finding of No Significant Impact, or FONSI), or to document a decision to prepare an EIS for actions believed to have significant impacts.

Environmental Impact Statement (EIS): A public document prepared by a Federal agency that provides an evaluation of impacts of a proposed Federal action when impacts are determined to be significant as documented in an EA. An EIS contains an analysis and discussion of significant environmental impacts of a proposed action, and informs the public of reasonable alternatives.

ESA: Endangered Species Act

FCRPS: Federal Columbia River Power System

Federal Flood Control Work/Federal Levee/Federal Dam: A federally authorized Flood Control Work, levee, levee system, or dam project. Flood Control Works constructed by non-Federal interests, or other (non-USACE) Federal agencies, and incorporating into a Federal system by specific Congressional action (i.e., United States law) are also designated as Federal Flood Control Works. Construction by, or previous rehabilitation or reconstruction of a non-Federal Flood Control Work by a Federal Agency (to include USACE, FEMA, NRCS, etc.) does not make the levee a Federal levee. Levees constructed under the authority of the Works Progress Administration are not Federal levees. Section 14 projects constructed under authority of PL 79 – 536 are not Federal Flood Control Works.

Flood: Abnormally high water flows or water level that overtops the natural or artificial confining boundaries of a waterway. A general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of river and/or tidal waters and/or the unusual accumulations of waters from any sources.

Flood control rule curve: A curve, or a family of curves, indicating the upper limit of reservoir surface elevation over time, to maintain reservoir storage space to prevent or control flooding downstream of a dam. (Also called Upper Rule Curve.) The rule curve elevation for a given point in time may be exceeded only temporarily in order to store high runoff to prevent downstream flooding.

Flood Fighting: Actions taken immediately before or during a flood to protect human life and to reduce flood damages, such as evacuation, emergency sandbagging and diking, and providing assistance to flood victims.

Flood Stage: Set by the National Weather Service. The water surface elevation of a river, stream, or body of water, above which flooding and damages normally begin to occur, normally measured with respect to a specific reference gage. Flood stage is normally the level at which a river overflows its banks. Flood stage for any particular geographical area is unique to that geographic area.

Flow: The volume of water passing a given point per unit of time.

Flow Augmentation: The release of water from storage reservoirs to meet sspecific seasonal life stage needs for fish downstream, above what would normally be released for human needs.

Freshet: A rapid temporary rise in streamflow caused by heavy rains or rapid snowmelt.

Freeboard: A factor of safety usually expressed in feet above a flood level for purposes of designing flood protection facilities and for floodplain management. Freeboard tends to compensate for the many uncertain factors that could contribute to flood heights greater than the heigth calculated for a selected size flood and floodway conditions, such as wave action, bridge obstructions, and the hydrological effect of urbanization of the watershed.

Full pool: The maximum level of a reservoir under its established normal operating range.

Gas bubble disease: A condition in fish resulting from prolonged exposure to supersaturated gas levels in water. In this condition, dissolved gas comes out of solution as bubbles in the circulatory systems, eyes, and other tissues of fish. The condition is similar to decompression sickness, or "the bends" in human divers. It may be fatal to fish in some circumstances.

Gas supersaturation: Concentrations of dissolved gas in water that are above the saturation (100 percent capacity) level of the water.

Hundred Year Flood: More accurately referred to as a "one percent chance flood," a flood of a magnitude that, according to historical statistics, has one chance in a hundred of ocurring in any given year.

Hydrology: The science of dealing with the continuous cycle of evapotranspiration, precipitation, and runoff.

Hydrologic Engineering Branch (HEB): Columbia Basin Water Management Division, Northwestern Divison, U.S. Army Corps of Engineers.

Inflow: Water that flows into a waterbody.

Intake: The entrance to a conduit that passes through a dam or water facility.

Integrated Rule Curve: The Integrated Rule Curve was developed by the state of Montana to achieve winter power drafts, spring fish flow, and refill Libby Reservoir.

Juvenile: Early life stage of an animal, having some resemblance to an adult of its kind.

Levee: A raised embankment constructed to prevent a river from flooding adjacent areas. Known as a dyke in Canada.

Local cost share: That portion of the cost of undertaking assistance authorized by PL 84 – 99 (.e.g, repairing an active levee which has been damaged) for which the public sponsor is responsible. The local cost share generally may be paid either in cash or as work-in-kind, or as a combination of the two.

Local flood control: Flood protection for nearby downstream areas provided by a flood control project or dam.

Low pool: At or near the minimum level of a reservoir under its established normal operating range.

Mainstem: The principal river in a basin, as opposed to the tributary streams and smaller rivers that feed into it.

National Environmental Policy Act (NEPA): The Federal law under which environmental impact evaluations are performed for proposed Federal (or Federally permitted) actions, and written as an environmental impact statement (EIS) or environmental assessment (EA).

NMFS: National Marine Fisheries Service also known as NOAA Fisheries

Nitrogen supersaturation: a condition in which the concentration of dissolved nitrogen in water exceeds the saturation level. Though this condition is unstable over the long term, it can persist for some time in a given mass of water, for instance river flow leaving a dam and moving downriver. Excess nitrogen can harm fish (see gas bubble disease).

Operating requirements: Guidelines and limits for operation of a reservoir or generating project. These requirements may originate in authorizing legislation, physical plant limitations, or other sources.

Operating rule curve: A curve, or family of curves, indicating how a reservoir is to be operated under specific conditions and for specific purposes.

Operating year: The 12-month period from August 1st through July 31st, used for hydropower analyses and operations.

Outflow: The volume of water per unit of time discharged at a dam.

Project Cooperation Agreement: An agreement entered into by a District Commander (acting as the agent for the Department of the Army and on behalf of the United States Government) and the public sponsor for the purpose of identifying each party's rights and obligations concerning the expenditure of funds under USACE authority other than that of PL 84 – 99. See also Cooperation Agreement.

Public Sponsor: A public sponsor must be a public entity that is a legally constituted public body with full authority and capability to perform the terms of its agreement as the non-Federal partner of the Corps for a project, and able to pay damages, if necesasary, in the event of its failure to perform. A public sponsor may be a State, county, city, town, Federally recognized Indian Tribe or tribal organization, Alaska Native Corporation, or any political sub-part of a State or group of states that has the legal and financial authority and capability to provide the necessary cash contributions and lands, easements, rights-of-way, reolactions, and borrow and dredgeed or excavated material disposal areas (LERRD's) necessary for the project.

Ramping: The act of reducing or increasing outflow from a dam. Ramping rates are set to prevent damage to fish and riverbanks downstream.

Reclamation: Bureau of Reclamation

Record of Decision: A document detailing a decision taken, as in the case of finalizing the action on an Environmental Impact Statement, together with the reasons for making that decision. Records of Decision may be published in the Federal Register.

Repair and Rehabiliation: The terms "repair" and "rehabilitation" mean the repair or rebuilding of a flood control structure, after the structure has been damaged by a flood, hurricane, or coastal storm, to the level of protection provided by the structure prior to the flood, hurricane, or coastal storm. The terms do not include improvements (betterments) to the structure, nor does "repair and rehabilitation" include any repair, reconstruction, or rehabilitation activities of a flood control structure which, in the normal course of usage, has become structurally unsouns and is no longer fit to provide the level of protection for which it was designed.

Reservoir Control Center (RCC): Reservoir Control Center, Columbia Basin Water Management Division, Northwestern Divison, U.S. Army Corps of Engineers

Refill: The point at which a hydropower system is considered "full" from the seasonal snowmelt runoff. Also refers to the annual process of filling a reservoir.

Reservoir draft rate: The rate at which the release of water from storage behind a dam reduces the elevation of the reservoir. Outflow must exceed inflow for this to occur.

Reservoir elevations: The levels of the water stored behind dams.

Reservoir storage: The volume of water in a reservoir at a given time.

River mile: Distance as measured from the river mouth at river mile 0.

RPA: Reasonable and Prudent Alternative

Run-off: That portion of precipitation, which is not intercepted by vegetation, absorbed by the land surface or evaporated and thus flows overland into a depression, stream, lake, or ocean.

Rule curve: Water levels, represented graphically as curves, that guide reservoir operations.

Salmonids: Fish of the family Salmonidae, such as salmon, trout (including steelhead), char, and whitefish.

Saturation: (1) Soil saturation. A condition in soil in which all spaces between the soil particles are filled with water. Such conditions normally occur after prolonged periods of rainfall and/or snowmelt. The result of a saturated condition is that any additional rainfll or snowmelt runs off into streamsand rivers instead of soaking into the ground.

(2) Levee saturation. Soil saturation that has occurred in an earthen levee because of flood waters remaining above flood stage for long periods of time. This condition can lead to catastrophic failure of the levee.

Scoping: The process of defining the extent of a study, primarily with respect to the issues, geographic area, and alternatives to be considered. The term is typically used in association with environmental analysis and documentation in conjunction with a public NEPA process.

Shaping: The scheduling and operating of generating resources to meet changing load levels. Load shaping on a hydro system usually involves the adjustment of reservoir releases so that generation and load are continuously in balance.

Smolt: A juvenile salmon or steelhead migrating to the ocean and undergoing physiological changes to adapt its body from a freshwater to a saltwater environment.

Spawning: The releasing and fertilizing of eggs by fish.

Spill: Water passed over a spillway or through sluiceways without going through turbines to produce electricity. Spill can be forced, when there is no storage capability and flows exceed turbine capacity, or planned, for example, when water is spilled to enhance juvenile fish passage.

Spillway: Overflow structure of a dam.

Storage Reservation Diagram: A graphic representation of how much storage space, in terms of water volume, needs to be reserved each month for flood control in a stroage reservoir such as Libby or Hungry Horse. The storage reservation for each month is based on that month's seasonal water supply inflow forecast.

Storage reservoirs: Reservoirs that have space for retaining water from springtime snowmelts. Retained water is released as necessary for multiple uses that include flood control, power production, fish passage, irrigation, and navigation.

Streamflow: The rate at which water passes a given point in a stream, usually expressed in cubic feet per second (cfs).

Sturgeon Recovery Team: a regional team responsible for the development of the Kootenai River White Sturgeon Recovery Plan. The team is made up of biologists, researchers, and other sturgeon experts from provincial, federal and state governments, BC Hydro, Teck Cominco Metals, BPA, USFWS, USACE, First Nations, American Tribes and others. Recovery is a shared Canada-U.S. goal, so the team includes members from Idaho and Montana states as well as from British Columbia, Canada.

System flood control: Flood protection for the Portland, Oregon/Vancouver, Washington metropolitan area that is coordinated among all of the storage reservoirs in the Columbia River System.

Threatened: Legal status under the federal Endangered Species Act afforded to plant or animal species that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range, as determined by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service.

TMT: Technical Management Team: The Regional Forum was established in the NMFS 1995 FCRPS BiOp and is comprised of sovereigns' representatives invited from Northwest States, Native American Indian Tribes and federal agencies to make recommendations concerning BiOp objectives. The TMT is a technical team that is tasked with making recommendations on real-time operations to meet the BiOp objectives.

Upper rule curve (URC): Defines the maximum allowable elevation of the surface of a storage reservoir, described over the course of a water year (Oct-Sep), for flood control purposes.

Usable storage: Water occupying active storage capacity of a reservoir.

Usable storage capacity: The portion of the reservoir storage capacity in which water normally is stored or from which water is withdrawn for beneficial uses, in compliance with operating agreements.

USFWS: US Fish and Wildlife Service.

VARQ: Abbreviation for Variable Flow (Q represents engineering shorthand for flow or discharge), an alternative flood control operation whereby a storage reservoir is lowered less in winter during years with a low or medium runoff forecast.

Velocity: Speed; the rate of linear motion in a given direction.

Water conditions: The overall supply of water to operate the Pacific Northwest hydroelectric generating system at any given time, taking into account reservoir levels, snowpack, needs to provide water or retain water to meet various operating constraints (such as the Water Budget, flood control, flow constraints, etc.), weather conditions, and other factors.

Water Supply Forecast: Estimates of the volume of water that will runoff from a specific watershed over a specific period of time.